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TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

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| EXAMINER |
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RIZK, SAMIR WADIE

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| ART UNIT | PAPER NUMBER |
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2133

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/601,384 | Applicant(s) ASGHAR ET AL. | |
| | Examiner Sam Rizk | Art Unit 2133 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTIONS

- Claims 1-16 have been submitted for examination
- Claims 1-16 have been rejected

Drawings

1. Figures 1-3 and 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following mentioned in the description:
Figures 4 and 9 in its entirety.
Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

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only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37CFR 1.84(p)(4) because reference characters **"100" and "200"** have both been used to designate **a sparse decoder in figures 4a and 9a** respectively.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because the following **Figures 4a, 4b 9a and 9b in its entirety** are not mentioned or described in the description.

Corrected drawing sheets or **deletion** in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. Regarding claims 5 and 12 the phrase "efficient" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "**efficient**"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d). Accordingly, the claims 5 and 12 are not been further treated on the merits.
6. Claims 8, and 15 recite the limitation "**The soft output**". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kajita et al. US patent no. 6813323 B2 (Hereinafter Kajita).

7. In regard to claim1, kajita teaches;
- A method of decoding a block code, the method comprising the steps of:
 - providing a Maximum Likelihood (ML) sparse decoder; and
(Note: Fig.1, reference character 108 and col. 3, lines (47-54) in Kajita)
 - decoding solely the a priori information of the code space subset used.
(Note: Col. 3, lines (22-45) and Fig. 1 in Kajita)

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8. In regard to claim 2, Kajita teaches;

- The method according to claim 1, wherein the step of decoding comprises using a known TFCS size to improve the decoder performance for a TFCI decoder used in a 3GPP compliant UE, wherein the UE at all times, is informed of the TFCS by a UTRAN through higher layer signaling.

(Note: Col. 3, lines (12-22) in Kajita)

9. In regard to claim 3, Kajita teaches;

- The method according to claim 1, wherein the step of decoding comprises decoding a (32,10) Reed Muller code used in 3GPP for TFCI encoding in Normal mode.

(Note: Kajita in Col. 1 lines (27-29) incorporates the 3GPP standard for TFCI decoder that specify the (32,10) Reed-Muller code)

10. Claim 4 is rejected for the same reasons as claim 3.

11. In regard to claim 6, Kajita teaches;

- The method according to claim 1, wherein the step of decoding comprises iterating all possible values of a predetermined transport format combination indicator (TFCI).

(Note: col. 3, lines (12-22) in Kajita)

12. In regard to claim 7, Kajita teaches;

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- The method according to claim 6, wherein the step of decoding further comprises generating a corresponding encoded TFCI for the hypothesis that is being decoded in a desired iteration.

(Note: col. 3, lines (23-40) in Kajita)

13. Claim 8 is rejected for the same reasons as claim 7.

14. In regard to claim 9, Kajita teaches;

- The method according to claim 8, wherein the step of decoding further comprises comparing the correlation result for the current iteration with that of the immediately previous iteration to determine the most correlated hypothesis.

(Note: Col. 7, lines (18-25) in Kajita)

15. In regard to claim 10, Kajita teaches;

- The method according to claim 7, wherein the step of decoding further comprises choosing from amongst the decoded TFCIS for transmission time intervals of longer than 10ms using an absolute reliability measure.

(Note: Fig. 3, reference character ST304 in Kajita0)

16. Claim 11 is rejected for the same reasons as claim 10.

17. Claims 13 and 15 are rejected for the same reasons on claim 9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita as applied to claim 14 and 16 above, and further in view of Kim et al. US patent no. 6961387 B1 (Hereinafter Kim).

18. In regard to claim 14, Kajita teaches all the limitations in claim 13.

However, Kajita does not explicitly teach that;

- The ML sparse decoder according to claim 13, wherein the correlator comprises a summer operational to sum the correlation results and generates a final correlation value.

Kim, in an analogous art, of coding/decoding optimal (11.5) codeword in a mobile communication system teaches (in Fig. 2, reference character 270) the RM decoder comprise a summer operational to sum the correlation results.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify kajita with the teaching of Kim to include details of the FIR digital filter.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized the need to develop a RM decoder having highest reliability.

19. Claim 16 is rejected for the same reasons as claim 14.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kim et al. US patent no. 6961387 B2 teaches apparatus and method for coding/decoding optimal (11,5) codeword in a mobile communication system.
- Kajita et al. US 6813323 B2 teaches decoding method and communication terminal apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Rizk whose telephone number is (571) 272-8191. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819.

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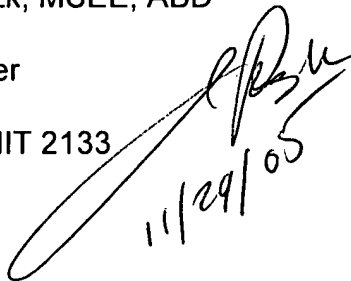
The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronics Business Center (EBC) at 866-217-9197 (toll-free)

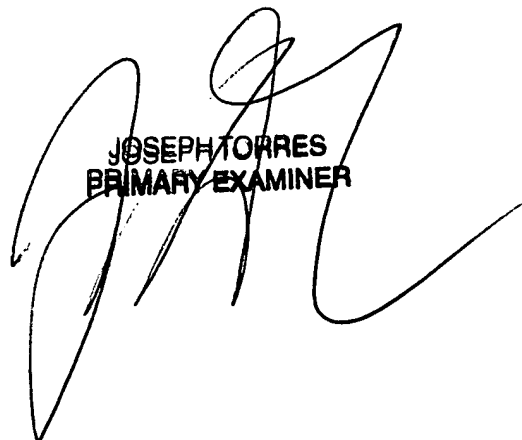
Sam Rizk, MSEE, ABD

Examiner

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11/29/05



JOSEPH TORRES
PRIMARY EXAMINER